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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,821	03/04/2004	Yoshiyuki Okada	00862.023502	5391
5514	7590	05/20/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			GUTIERREZ, KEVIN C	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	
			2851	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

8m

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/791,821	OKADA, YOSHIYUKI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kevin Gutierrez	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on March 4, 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8, 9 and 12 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6 and 11 is/are rejected.
- 7) ☒ Claim(s) 5, 7 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on March 4, 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>April 14, 2004</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 4, 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amano (US 2002/0085184) in view of Suzuki (US 2004/0105085).

Amano discloses an “air pressure measurement means (Fig. 1, ref.# 80) for comprising air pressures in a neighborhood of or inside a projection optical system (Fig. 1, ref.# 5); first correction means (Paragraph 0028, lines 9-10), including aberration adjustment by driving a lens of the projection optical system (Fig. 1, ref.# 5), for repeatedly executing correction of an aberration based on the air pressure (Paragraph 40, lines 1-16) which is measured by said air pressure measurement means (Fig. 1, ref.# 80)”. Amano does not teach “executing correction of an aberration at a time interval longer than a repetition of the aberration correction executed by said first correction means, based on the air pressure which is measured by said air pressure measurement means.”

However, having the “second correction means, including aberration adjustment by changing a wavelength of an exposure light source, for executing correction of an aberration at a time interval longer than a repetition of the

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aberration correction executed by said first correction means based on the air pressure which is measured by said air pressure measurement means” is routine in the art as is evident to the teaching of Suzuki. (see Paragraph 0133, lines 1-7). It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Amano’s invention by having the first corrections means correct aberrations in a shorter time interval than the second correction means. Thus, it would have been obvious to one ordinary skilled in the art at the time of the invention was made to have an exposure apparatus comprise of a “second correction means, including aberration adjustment by changing a wavelength of an exposure light source, for executing correction of an aberration at a time interval longer than a repetition of the aberration correction executed by said first correction means, based on the air pressure which is measured by said air pressure measurement means.”

The ordinary artisan would have been motivated to modify Amano’s invention in a matter described above for at least the purpose to promote a more precise correction method.

Regarding claim 3, Amano teaches “wherein said first correction (Paragraph 0028, lines 9-10) means performs correction at least during a shot of an exposure (Paragraph 0074, lines 1-7 and Paragraph 0076, lines 1-2) and said second correction (Paragraph 0028, line 11) means performs correction in a non-shot state of the exposure (Paragraph 85, lines 1-7 and Paragraph 0088, lines 1-2).”

Regarding claim 4, Amano teaches “wherein said first correction (Paragraph 0028, lines 9-10) means performs correction from the beginning (Paragraph 0161,

lines 1-3) of an exposure process for a wafer (Fig.1, ref.# 8) to the end of all shots of the exposure (Paragraph 0162, lines 1-4), and said second correction (Paragraph 0028, line 11), means performs correction while the wafer (Fig.1, ref.# 8) is exchanged (Paragraph 0139, lines 1-3) after the end of said exposure process (Paragraph 0167, lines 1-5).”

Regarding claim 6 Amano teaches “further comprising stage driving means for adjusting an aberration by driving a wafer stage (Fig.1, ref.# 10) in the optical-axis direction (Paragraph 0028, lines 8-9), wherein said first correction means (Paragraph 0028, lines 9-10) and said second correction (Paragraph 0028, line 11) means performs aberration correction using said stage driving means (Paragraph 0149, lines 1-3).”

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amano (US 2002/0085184) in view of Suzuki (US 2004/0105085) and further in view of Uzawa (6,614,503).

Regarding claim 1, a modified Amano discloses methods for first correction (Paragraph 0028, lines 9-10) and second correction means (Paragraph 0028, line 11). Amano does not disclose the amount of aberrations corrected by first and second correction means.

However, “wherein said second correction means (Paragraph 0028, line 11) corrects more aberrations than that of the first correction means (Paragraph 0028, lines 9-10)” is routine in the art as is evident to the teaching of Uzawa (see col. 5, lines 32-35 and col. 6, lines 12-15). It would have been obvious to one ordinary

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skilled in the art at the time of the invention was made to include “wherein said second correction means (Paragraph 0028, line 11) corrects more aberrations than that of the first correction means (Paragraph 0028, lines 9-10).”

The ordinary artisan would have been motivated to modify Amano’s invention in a matter described above for at least the purpose to limit the amount of corrections by correction methods provided.

*Allowable Subject Matter*

4. Claims 8, 9 and 12 are allowed.
5. Claims 5,7, and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or disclose (claim 5) “wherein said second correction means performs aberration correction by changing the wavelength, or by changing the wavelength and driving lens” and a (claims 7, 8 and 12) “calibration means for calibrating an output of said second barometer based on an output of said first barometer, and outputting a calibration result as a measured air pressure value; and aberration means for performing aberration correction based on the air pressure value outputted by said calibration means.”

### *Conclusion*

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ogura et al (6,795,161) teaches a correction device for correcting optical characteristics of the projection optics unit and first pressure sensor and second pressure sensors to regulate pressure within a chamber that contains the projection optics unit.
2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Gutierrez whose telephone number is (571)-272-5922. The examiner can normally be reached on Monday-Friday: 7:30a - 4:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Gutierrez

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Examiner  
Art Unit 2851

May 4, 2005

**RODNEY FULLER**  
**PRIMARY EXAMINER**

A handwritten signature in black ink, appearing to read "R. Fuller", written over the printed name.